REMARKS

Applicant has amended claim 20, cancelled claim 22 and added new claims 28-32. Claims 20-21, 23, 28-32 are pending in this application. Newly added claims are believed to be directed to Species X as defined by the Examiner in the parent application (Serial No. 09/780,263).

The Examiner objected to the title as being not descriptive. Applicant has changed the title so that it clearly indicates the invention claimed.

The Examiner objected to FIGS. 1 and 2 as not stating that they are prior art. Applicant is submitting herewith replacement drawings for FIGS. 1 and 2 which have now been designated as Prior Art.

The Examiner objected to the Abstract because it does not set forth the nature and gist of the invention. Applicant has submitted a new Abstract that does set forth the nature and gist of the invention.

The Examiner objected to claims 20 and 23. The Examiner stated that in claim 20, it is unclear as to how many magnetizing or detecting coils are being claimed. Applicant has amended claim 20 so that it now claims one or more coils. Although the specification shows only a single detecting coil, Applicant submits that the claim should not be limited to what is shown in the drawings.

The Examiner then stated that the phrase "one end of each of said ..." is vague. Applicant has amended the claim language to make it clearer.

The Examiner stated that the phrase "is arranged to be approximately ... to be detected" is not clearly understood. Applicant submits that it is clear. As shown in FIG. 35 (by way of example only), the axial direction CX (up and down direction in FIG. 35) of the core body is approximately equal in the directional movement (up and down movement in FIG. 35) of the object to be detected. Thus, Applicant submits that the claim language at issue is clear.

For claim 23, the Examiner stated that it is unclear how magnetizing coils have a pair of wound portions. Applicant believes that the meaning is clear. For example, the wound portions refer to the pair of portions 2013c and 2013d in FIG. 34.

More substantively, the Examiner rejected claims 20-23 under 35 U.S.C. Section 102(b) ad being anticipated by Honkura (US Patent No. 5103173). Applicant traverses the rejection to the extent that the rejection applies to the claims as amended.

The present invention will now be explained, by way of example only, with reference to the FIGS. 34-35 and the related explanation in the specification. The displacement sensor 2010 of FIG. 34 includes a core body 2011 having a core center portion 2011a and two core end portions 2011c and 2011d. A detecting coil 2012 is wound around the center portion 2011a and magnetizing coils 2013c and 2013d are wound around the two core end portions 2011c and 2011d. The coils are all wound around an axis CX of the core body 2011. It is important to note that the detecting coil 2012 can be the magnetizing coil and the magnetizing coils 2013c and 2013d can be the detection coils as stated in the specification at page 56, lines 6-8.

In the configuration described above, detection of an object such as a coin is performed based on the balance between the pair of magnetizing coils 2013c and 2013d. Therefore, a change in the magnetic fluxes can be sensitively detected with excellent linearity using thin and compact core body 2011 regardless of any impedance by direct current resistance division. Further, without using a constant current circuit as in a conventional configuration, an inexpensive circuit can provide stable detection operation in spite of a change in the surrounding temperature.

Another novel feature of the displacement sensor is that the width W2 of the end portions is smaller than the width W3 of the center portion, which improves the current efficiency in core end portions 2011c and 2011d. Hence, more magnetic flux is generated resulting in increased sensitivity in detection as discussed in the present specification at page 54, lines 18-21.

This novel feature is recited in claim 20 as "wherein the width of said pair of said core end portions in the direction perpendicular to the axial direction is substantially the same and is smaller than the width of the core center portion".

By contrast, the Honkura device fails to teach that the width of the end portions is smaller than the width of the core center portion. In fact, the width of the core body in Honkura is uniform throughout. Therefore, the Honkura device does not provide the benefit of having increased sensitivity.

Moreover, the Honkura device is concerned with determining the permeability of an object which is quite different from sensing the relative position of the object as claimed in claim 20. As clearly taught, the Honkura device operates by having the object *contact* the core body (see col. 2, lines 46-64). In other words, the Honkura device does not sense the relative position of the object.

Applicant submits that dependent claims 21 and 23 are patentable by virtue of their dependency from independent claim 20.

New independent claims 28-32 are presented. For the similar reasons as discussed above with respect to claim 20, Applicant submits that claims 28-32 are patentable.

Based upon the above amendments and remarks, Applicant respectfully requests reconsideration of this application and its early allowance. Should the Examiner feel that a telephone conference with Applicant's attorney would expedite prosecution of this application, the Examiner is urged to contact him at the number indicated below.

Respectfully submitted,

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Amendments to the Drawings:

The attached single sheet of drawing includes changes to FIGS. 1 and 2. The sheet replaces the original sheet. Figures 1 and 2 have both been labeled as "(Prior Art)".

Attachments: 1 Replacement Sheet